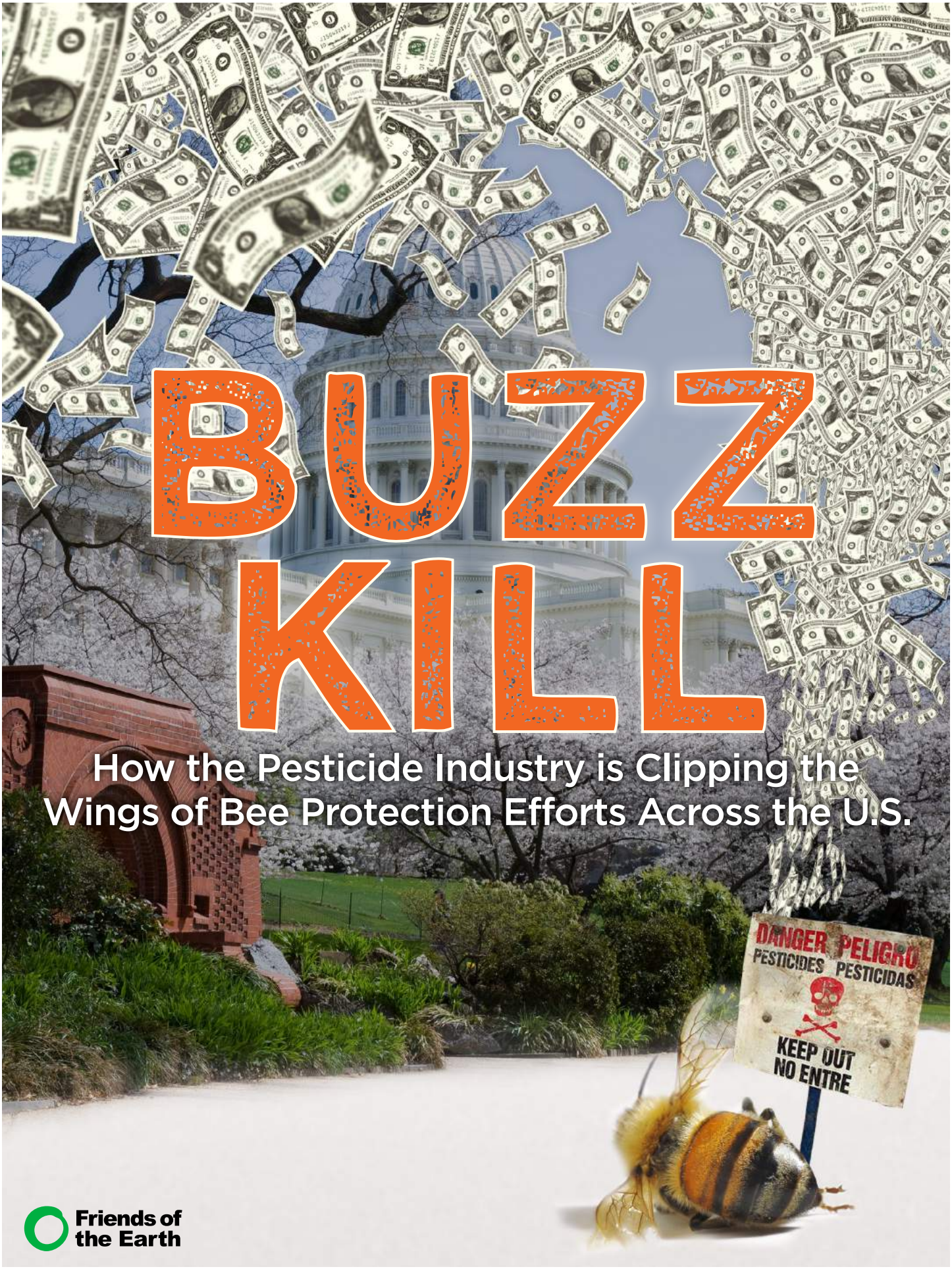
BUZZ
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How the Pesticide Industry is Clipping the Wings of Bee Protection Efforts Across the U.S.
DANGER PELIGRO
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Friends of the Earth

ACKNOWLEDGMENTS

This report was authored by Tiffany Finck-Haynes, Friends of the Earth and Christopher D. Cook. Consultation and editing by Carey Gillam. Contributions from Susan Kegley, PhD, Pesticide Research Institute. Reviewed by Lisa Archer, Friends of the Earth and Kendra Klein, PhD, Friends of the Earth.

About Friends of the Earth U.S.:

Friends of the Earth U.S., founded by David Brower in 1969, is the U.S. voice of the world's largest federation of grassroots environmental groups, with a presence in 74 countries. Friends of the Earth works to defend the environment and champion a more healthy and just world. Through our 47-year history, we have provided crucial leadership in campaigns resulting in landmark environmental laws, precedent-setting legal victories and groundbreaking reforms of domestic and international regulatory, corporate and financial institution policies. **www.foe.org**

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EXECUTIVE SUMMARY

Background: Bees and Pesticides

Bees and other pollinators are the backbone of our food system — essential for nutritious crops such as apples, almonds and blueberries. The portion of our food supply dependent on pollinators has grown by 300 percent in the last 50 years and $577 billion of annual global food production relies on direct contributions by pollinators. However, pollinators are dying at an alarming and unsustainable rate. The U.S. has been losing an average of at least 30-40 percent of its honeybee colonies annually, and 40 percent of invertebrate pollinator species, including bees and butterflies, are on the brink of extinction worldwide. A growing body of science shows that pesticides are a leading driver of pollinator decline. Neonicotinoids — the most widely used type of insecticide in the world — are particularly toxic to bees, and glyphosate, the most widely used herbicide in the world, has been identified as a major source of monarch decline. Neonicotinoid use has skyrocketed in recent years from zero pounds in 1994 to over 6 million pounds in 2012, while glyphosate use jumped from 17 million pounds in 1992 to 286 million pounds in 2012. Neonicotinoids now comprise 40 percent of global insecticide sales (and generated more than $2.63 billion in sales in 2011 alone), while glyphosate represents a roughly $8 billion yearly market.

The chemical industry wields enormous power and has deep pockets, with market leaders tallying more than $150 billion in combined revenues in 2015.

Syngenta	**$13.4 billion**
Monsanto	**$15 billion**
DuPont	**$25.1 billion**
Dow Chemical	**$48.8 billion**
Bayer	**$52.76 billion**

Amid unsustainable annual losses of honey bee colonies, regulators, lawmakers and consumers are beginning to take action to protect these vital pollinators. However, the pesticide industry's extensive efforts to influence policymakers, regulators and the public have impeded reforms — creating deep reluctance to rein in neonicotinoids and glyphosate pesticides that scientific research shows are key drivers of pollinator losses. Thanks to extensive pesticide industry lobbying, federal and state policies so far provide more distraction than action, with few solid steps taken to reverse devastating bee declines.

As a result of President Obama's Presidential Memorandum on Pollinators, EPA is directing states to develop Pollinator Protection Plans. These plans are taking the place of strong federal regulations to reverse pollinator declines, and lack specific enforceable regulations regarding pesticide use.

Industry efforts appear to be working: Rather than strong federal regulations to reverse bee declines, what is emerging is a patchwork of state programs and policies that lack specific enforceable regulations regarding pesticide use. This allows regulators and companies to appear as if they are taking action while, in fact, doing little to reverse bee losses.

Top ways the pesticide industry is protecting profits and delaying bee protections

As this report makes clear, the pesticide industry's multilayered public relations and lobbying campaigns have effectively clipped the wings of pollinator protection reforms — placing industry profits above the interests of the public, food security and our environmental future.

This analysis builds on the 2014 Follow the Honey report published by Friends of the Earth that uncovered the deceptive public relations tactics chemical companies Bayer, Syngenta and Monsanto are using to manufacture doubt about science and convince politicians to delay action on neonicotinoid pesticides. As the bee crisis worsens, these companies are using tobacco-style PR tricks to protect their profits at the expense of bees and our food system.

In this report, we document the latest tactics used by the pesticide industry to delay pesticide reforms and distract from their contribution to pollinator declines. We also examine the problems and potential gains in a raft of state pollinator protection plans now being launched.

Doubling down on lobbying, delaying action to protect bees

Chemical corporations spend tens of millions of dollars a year lobbying to protect their industry. While these numbers are not specific to pollinator and pesticide legislation, they paint a picture of how much the top pesticide companies are spending on direct lobbying of state and federal regulators. In 2015 alone, Bayer spent $7,650,000, Syngenta spent $1,400,000, Monsanto spent $4,330,000, DuPont spent $6,118,604, Dow Chemical spent $10,820,000 and CropLife America spent $2,385,838 on lobbying efforts. Some of these dollars are pumped into lobbying efforts regarding pollinators.

In states, these companies are spending hundreds of thousands of dollars on lobbying too. In Massachusetts, records show that Bayer, Syngenta, CropLife America, Responsible Industry for a Sound Environment, TruGreen and Green Industry Alliance, spent over $190,000 dollars on lobbying last year on measures aimed at halting pesticide restrictions in the state, and diverting attention to other factors contributing to bee decline. This is more than double the $70,000 non-profit advocates spent in support of the legislation to restrict pesticides in the state to protect pollinators.

This lobbying has paid off. Across the U.S., state bee protection plans are falling short in several ways. In this report, we document the primary problems with the state plans, including:

- State pollinator protection plans currently provide more protections for pesticides and pesticide users than for beekeepers and bee colonies.
- Pesticide industry influence is pervasive throughout states' legislative and regulatory planning efforts.
- Plans lack metrics to measure effectiveness, improvement or failure.

Cycling through the revolving door

Our extensive review of public records demonstrates that the pesticide industry has expended great resources nationwide in an effort to dissuade federal and state governments from restricting pesticide use to save pollinators. This includes infiltrating our federal regulatory agencies via the "revolving door." The United States Department of Agriculture has more than 180 cases, while the Environmental Protection Agency has more than 150 cases, of employees shuffling between regulatory agencies and companies such as Bayer, Syngenta and Monsanto. Examples include Krysta Harden, the former deputy secretary of the USDA and co-chair of the White House Task Force on Pollinator Health. This year she announced she was joining DuPont as the vice president of public policy and chief sustainability officer. Similarly, Linda Strachan moved from her public role as a USDA assistant secretary for congressional relations to become Monsanto's director of federal government affairs. She then moved back into public service as an assistant at the EPA before landing at DuPont as director of government affairs.

Building Credibility and using public-private partnerships to distract attention from pesticides

Pesticide manufacturers also cultivate strategic "public-private" partnerships that call into question neonicotinoids' culpability or help bolster the companies' credibility. Top examples include the Pollinator Partnership (P2) — a "public-private" alliance with a history of prominent industry ties — the partnership's Corn Dust Research Consortium and Oregonians for Food & Shelter.

Swaying science and education

The pesticide industry has directly funded or influenced science. For example, Public Employees for Environmental Responsibility filed a petition on behalf of 10 USDA researchers that alleges they were silenced and censored for their work involving issues that included the harms of pesticides, including neonicotinoids and glyphosate. Dennis Van Engelsdorp, an assistant professor of Entomology at the University of Maryland, sits on Monsanto's Honey Bee Advisory Council and often restates industry talking points. Bayer consistently donates to educational initiatives. In recent years, the company donated $10,000 dollars to both the SEED School of Washington, D.C. and the Kansas City, Missouri-based Lakeside Nature Center, $50,000 to the National Future Farmers of America Organization, $10,000 to the Illinois Central College Agricultural Program and $150,000 to the National Agricultural Center and Hall of Fame in Bonner Springs, Kansas.

Megamergers on the horizon threaten pollinators and our food system

So far, pesticide companies appear to have succeeded in delaying regulatory action on the pesticides they manufacture and market. And their market and political power may soon expand: The top six pesticide companies are currently negotiating potential mergers which could result in just three powerful pesticide corporations. If Monsanto and Bayer, Dow and Dupont, and Syngenta and ChemChina each form partnerships, the three resulting corporations will control more than 65 percent of global pesticide sales and almost 61 percent of commercial seed sales. This could severely harm options and sustainability for farmers, consumers and our environment.

As pollinators decline in record numbers, it is more important than ever that the agrichemical industry's efforts to promote and protect its products at all costs be met with rigorous regulatory action from state and federal officials. We must place restrictions on these pesticides in order to protect our pollinators, our food system and the environment.

INTRODUCTION

Bees and other pollinators are essential to our food system and environment – responsible for pollinating 80 percent of all flowering plants and one in three bites of the food we eat.[1, 2]

But pollinators are in trouble. The United Nations estimates that 40 percent of pollinator species, including bees and butterflies, are facing extinction.[3] A growing body of scientific evidence has identified pesticides as a leading driver of the declines.[4]

Global attention to the demise of bees and monarch butterflies is finally spurring action to regulate certain classes of pesticides that are a primary threat to pollinator survival. Thanks to a growing movement led by environmental groups, beekeepers, citizens and responsible businesses, federal and state governments across the U.S. are exploring measures to protect pollinators.

After years of studies and warnings from the scientific community about pesticides' significant threat to pollinators, the EPA, state regulatory agencies and lawmakers are finally acknowledging that pesticides, including a class known as neonicotinoids, are a key contributor to bee losses. State and federal officials are advancing new pollinator protection initiatives to benefit the bees and beekeepers that are crucial to our future food security.

However, the agrichemical industry is actively fighting efforts to regulate pesticide use, hobbling pollinators' recovery. This report presents new research by Friends of the Earth revealing that political pressure applied by the pesticide industry continues to delay legislative and regulatory efforts to limit the use of pesticides linked to pollinator decline. The industry wields enormous power and has deep pockets, with market leaders tallying more than $150 billion in combined revenues in 2015.

Syngenta	**$13.4 billion**[5]
Monsanto	**$15 billion**[6]
DuPont	**$25.1 billion**[7]
Dow Chemical	**$48.8 billion**[8]
Bayer	**$52.76 billion**[9]

As this report details, these agrichemical companies are spending millions of dollars each year lobbying to keep pesticide restrictions at bay, making them powerful players in the pollinator policy arena.

Industry efforts appear to be working: Rather than strong federal regulations to reverse bee declines, what is emerging is a patchwork of state programs and policies that lack specific enforceable regulations regarding pesticide use. This allows regulators and companies to appear as if they are taking action while, in fact, doing little to reverse bee losses.

This report provides a detailed look inside the industry's legislative and lobbying activities aimed at slowing and stifling reform, including actions the agrichemical industry has taken to undermine or block limitations on pesticide use. We also examine the problems and potential gains in a raft of state pollinator protection plans now being launched. This analysis builds on the 2014 Follow the Honey report published by Friend of the Earth.

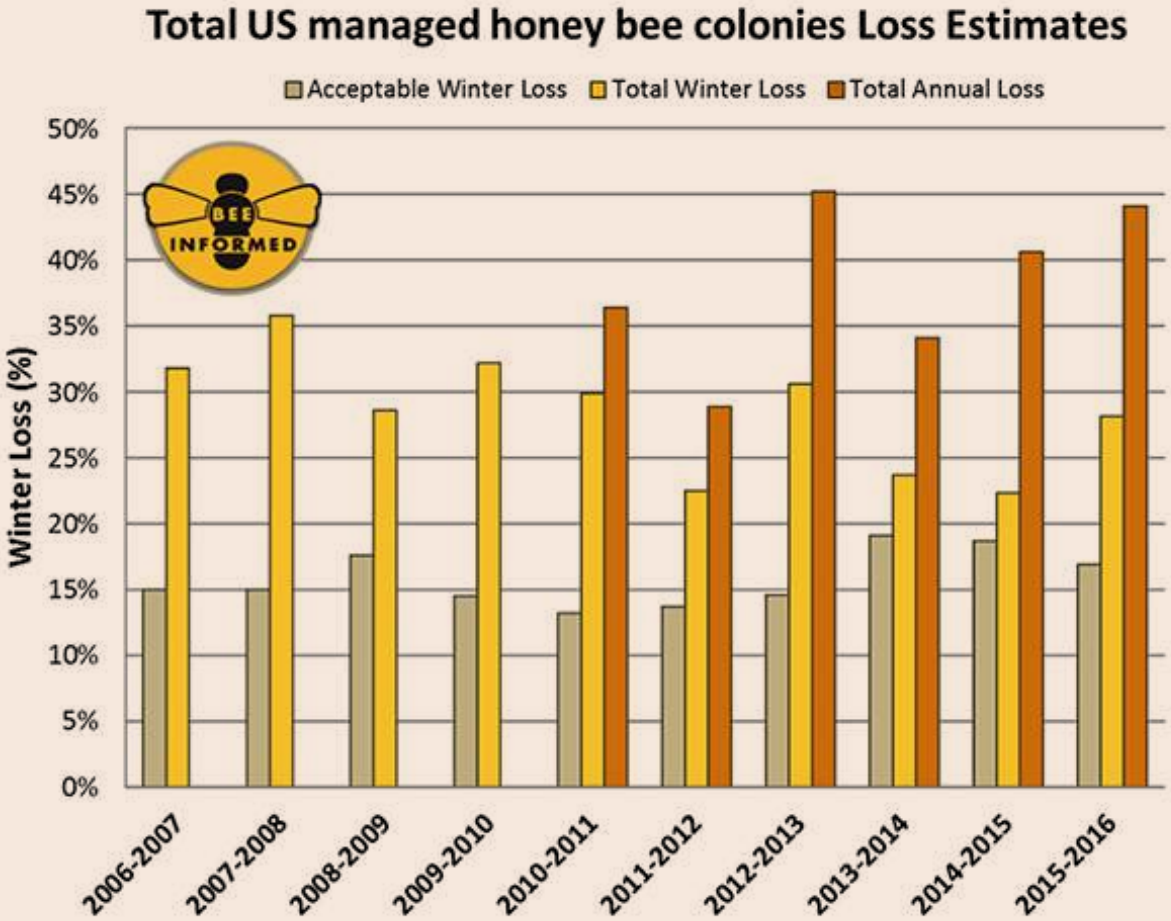
BEE LOSSES SPUR ACTION – BUT IS IT ENOUGH?

Bees and other pollinators, including butterflies and hummingbirds, help pollinate the majority of our flowering plants, including many foods we eat, from apples to squash to tomatoes.[10] The volume of agricultural production dependent on pollinators has increased by 300 percent in the last 50 years and now represents a $577 billion market globally.[11]

Unsustainable bee loss in the U.S. has sparked action by universities, cities, states and businesses as they work to leverage their power to take steps to restrict pesticide use. However, as bee losses continue at unprecedented rates, it is clear we need more action by the federal government to restrict pesticide use in order to successfully reverse this trend. America's honeybee population remains dangerously unstable. In recent years, the nation has been losing an average of at least 30 - 40 percent of total honeybee colonies annually, representing record levels of loss.[12] In the past, normal losses were pegged at 5-10 percent.[13] In locations throughout the U.S., beekeepers noticed their colonies mysteriously collapsing, with adult bees disappearing and leaving the queen, honey and developing larvae in nearly empty hives. This phenomenon has been dubbed "Colony Collapse Disorder," or CCD.[14] Some farmers are facing shortages of bees necessary to pollinate their crops, and the cost of renting bees for pollination services has increased up to 20 percent.[15]

Neonicotinoids: A primary culprit

A growing body of scientific evidence points to pesticides as a leading factor in bee decline. Science demonstrates that a class of neurotoxic pesticides related to chemicals produced by tobacco plants

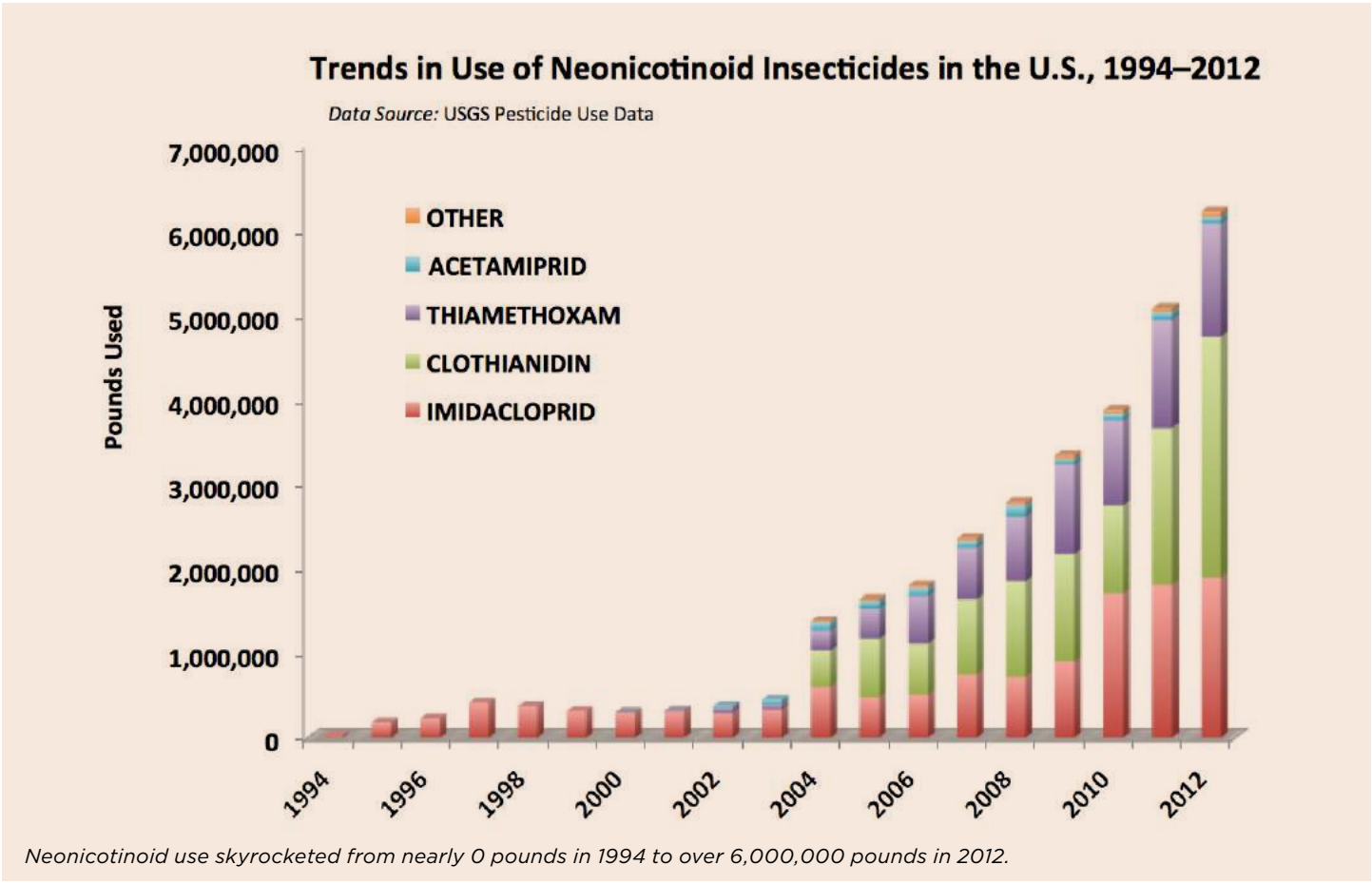


Summary of the total colony losses overwinter (October 1 – April 1) and over the year (April 1 – April 1) of managed honey bee colonies in the United States. The acceptable range is the average percentage of acceptable colony losses declared by the survey participants in each of the nine years of the survey. Winter and Annual losses are calculated based on different respondent pools. Source: beeinformed.org

called neonicotinoids (neonics), is a primary culprit. Neonics are the fastest-growing class of synthetic pesticides in history, and imidacloprid – Bayer Crop Science's top-selling product – is the most widely used insecticide in the world[16] with a market share of roughly 40 percent. Global sales of acetamiprid, clothianidin, dinotefuran imidacloprid, nitenpyram, nithiazine, thiacloprid, thiamethoxam and fipronil had combined global sales of over US $2.63 billion in 2011.[17]

Neonics are ubiquitous as seed coatings on more than 140 varieties of crops - the majority of corn and a large percentage of soy, wheat and canola seeds are coated with the pesticide.[18] The use of corn and soybean seeds treated with these pesticides has dramatically increased. In 2000, less than 5 percent of soybean and less than 30 percent of corn acres were treated with an insecticide. However, by 2011, a minimum of 30 percent of all soybean and a minimum of 79 percent of all corn acres planted in the U.S. were neonicotinoid-treated seeds.[19] They are also found in our own yards and gardens. Many of the plants and seeds we buy from nurseries have been pre-treated with these pesticides at doses up to 120 times higher than are used on farms.[20]

Neonicotinoids are systemic, meaning they are absorbed and spread throughout the stems, leaves and flowers of the growing plant. They are also persistent, meaning their toxins can linger for years in the environment.[21] Researchers have found that neonics hurt bees in many ways. Numerous studies have revealed that neonicotinoids can kill bees outright by attacking the nervous system, while low levels of exposure have been shown to disrupt foraging abilities, navigation and other life-preserving activities.[22] Neonics also suppress bees' immune systems, making them more vulnerable to diseases and pests such as the varroa mite.[23,24] There are three main routes of exposure for bees: residues in nectar and pollen in the flowers of treated plants, dust produced during the sowing of treated seeds or application of granules, and residues in fluid produced by treated plants.[25] Along with imidacloprid, Syngenta's thiamethoxam has been found to cause significant harm to bumblebee colonies even when applied at normal levels of use.[26] The European Food Safety Authority identified three main routes of exposure for bees: residues in nectar and pollen in the flowers of treated plants, dust produced during the sowing of treated seeds or application of granules, and residues in fluid produced by treated plants.



Neonicotinoid use skyrocketed from nearly 0 pounds in 1994 to over 6,000,000 pounds in 2012.

U.S. REGULATORY INACTION

Honeybee losses have become so dire and undeniable that the crisis has spurred policy action at the local, state and federal levels. President Obama issued a 2014 presidential memorandum to protect pollinators and established a "Pollinator Health Task Force" to be co-chaired by the secretary of agriculture and the administrator of the EPA.[27] The directive called on the EPA to assess the impact of pesticides, including neonicotinoids, on bees and other pollinators and to take action to protect pollinators.

While the agency claims it is "committed… to protecting bees and reversing bee loss," it has only taken small steps to address pesticides. In 2015, the EPA proposed to prohibit the use of pesticides toxic to bees, including neonicotinoids, when crops are in bloom and bees are "under contract" for pollination services.[28] The agency also placed a temporary moratorium on new outdoor neonicotinoid pesticide uses until a series of pollinator risk assessments are completed.[29] But these actions don't eliminate consumer sales of neonicotinoids, stop these products from being used in agriculture or address coated seeds — which the EPA does not regulate as a pesticide application despite the rapid increase of neonicotinoids in recent years being driven by this use. More broadly, the EPA has yet to cut back the more than 500 neonicotinoid products on the market for more than 100 agricultural and landscape uses.[30]

Even by the government's own measures, pollinator protection efforts are falling short. The independent, bipartisan Government Accountability Office has taken the USDA and EPA to task for numerous failings and has outlined ways that the agencies can take more meaningful action to protect pollinators. The GAO's February 2016 analysis found that the USDA is failing to work with federal agencies to coordinate a native bee monitoring plan, that the EPA is failing to adopt tools to assess the risks posed to pollinators by mixtures of pesticide products and that EPA's efforts to promote bee habitat conservation may be limited by gaps in research and evaluation.[31]

The EPA is in the process of completing assessments for all neonicotinoids this year. Its first assessment, released this January in collaboration with California's Department of Pesticide Regulation, determined that imidacloprid "potentially poses a risk to hives" when the pesticide is used in the production of certain crops such as citrus.[32] Though it is good news that EPA acknowledges the need to improve bee health, the agency's work so far lags far behind the European Union, which imposed a moratorium on the use of neonicotinoids on flowering crops in 2013 after a scientific review found that they present a high risk for bees.[33]

The government in Ontario, Canada is also well ahead of the United States when it comes to protecting bees. Officials there have become so concerned about neonics that the government plans to cut the use of neonicotinoid-treated seed for corn and soybeans by 80 percent by 2017.[34]

WHEN A WEED KILLER KILLS MORE THAN WEEDS

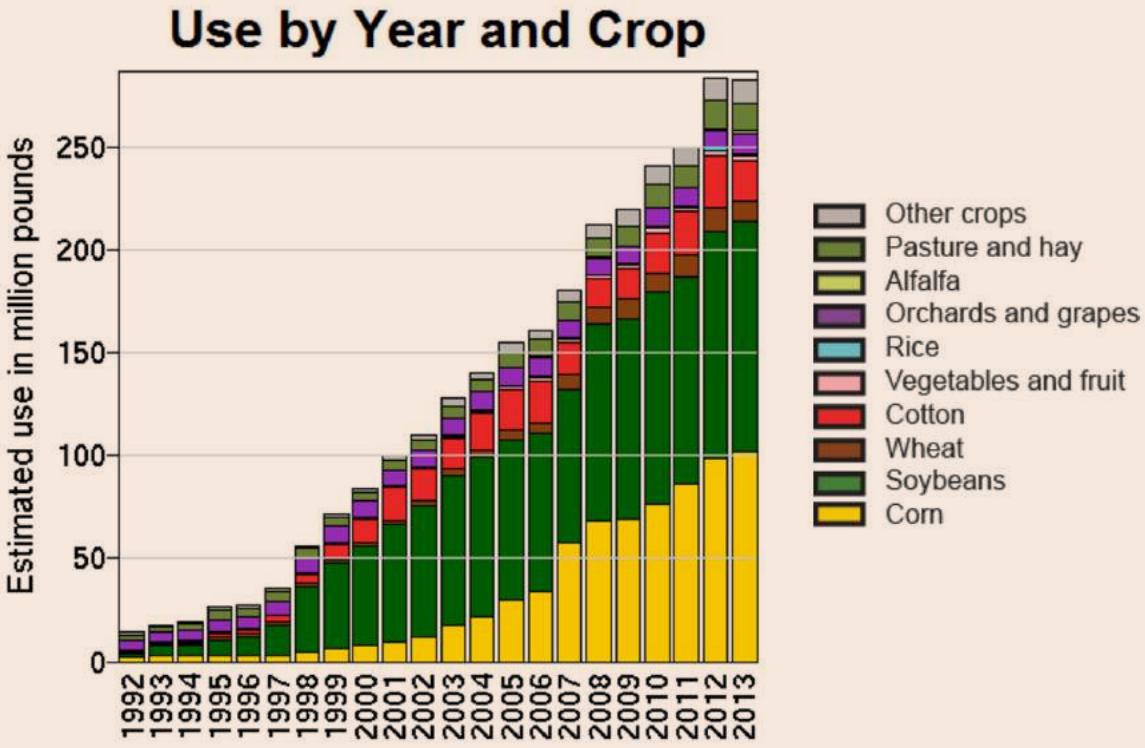
Bees are not the only pollinators in danger. Monarch butterflies are also in dramatic decline, a loss that has been tied to the popular herbicide glyphosate, the active ingredient in Monsanto's branded Roundup® products.[35] Across the U.S. Midwest, millions of acres are planted with Roundup Ready® corn and soybeans which have been genetically engineered to be tolerant to glyphosate, allowing farmers to spray glyphosate more frequently. In a toxic cycle, increased use of glyphosate has led to rising levels of weed resistance which, in turn, has spurred increased use of glyphosate and other herbicides.

The proliferation of glyphosate use on crops located along the monarch butterfly's migration route has virtually wiped out milkweed – the only food young monarch caterpillars eat. Since genetically engineered glyphosate-tolerant crops were first commercialized twenty years ago, the monarch butterfly population has declined by 90 percent.[36] Today, experts estimate that monarch butterflies would need nearly a five-fold increase to return to a stabilized population.[37]

Amid mounting fears about the disappearance of the monarch, Monsanto has promoted its efforts to reverse the trend – but none involve reducing the use of glyphosate, which generates roughly $5 billion in sales annually for the company.[38] Instead, in 2015, Monsanto announced a $400,000 commitment to fund monarch butterfly restoration efforts that include research at University of Guelph and University of Chicago Energy Resources Center and a $3.6 million grant to the National Fish and Wildlife Foundation.[39]

For its part, the EPA says part of its new risk assessment for glyphosate involves analyzing glyphosate's toxicity to milkweed. But the agency has yet to restrict glyphosate use, as the Netherlands,[40] Colombia[41] and Sri Lanka[42] have done, and as other countries around the world are considering.

At minimum, the EPA should follow the urging of the Natural Resources Defense Council, which in 2014 petitioned the agency to limit glyphosate in ways that protect the monarch. The EPA should prevent the use of glyphosate and other weed killers along highways and utility rights of way so milkweed can grow freely, and the agency should help farmers establish herbicide-free safety zones in or around farm fields.[43]



Glyphosate use increased from a total of 17M lbs in 1992, up to a maximum of 286M in 2012.[44]

A PATCHWORK OF STATE, MUNICIPAL AND MARKET ACTION

In the absence of federal action in the U.S., garden retailers and state and local governments are taking matters into their own hands. Due to the work of Friends of the Earth, advocacy groups and consumers across the country, more than 30 businesses in the United States, including Home Depot,[45] Lowe's[46] and the lawn and garden product marketer Scotts Miracle-Gro®, have announced steps to eliminate the use of neonicotinoids.[47] Likewise, the discount supermarket chain Aldi has pledged not to sell products containing neonicotinoids and to increase its percentage of organic offerings.[48] According to an Oxford University meta-study, organic farms support 50 percent more pollinator species than conventional farms.[49]

In April 2016, Maryland became the first U.S. state to restrict consumer use of neonics after seeing state-wide colony losses of more than 61 percent in 2014.[50] Connecticut followed suit later that month.[51] Nearly a dozen other states have considered, or are currently weighing, similar legislation.[52]

Meanwhile, more than 25 municipalities and universities across the United States have passed policies to restrict or eliminate the use of these pesticides. Boulder, Colorado issued a resolution calling on all its residents to stop using neonics in their yards, to grow bee-friendly flowers and to take a pledge to protect pollinators. The city has cut its use of neonics on city property and is working to switch landscaping materials it purchases to "pollinator safe materials."[53]

As the evidence of harm – and efforts to mitigate that harm – mount, the EPA has passed the buck to state and tribal agencies to develop and implement local pollinator protection plans (known as Managed Pollinator Protection Plans or MP3s) instead of adopting a unified federal strategy to improve regulations to protect pollinators. The MP3s are supposed to address the use of highly toxic pesticides in areas beyond where bees are providing crop pollination services. By opting for this process, the EPA has abandoned federal responsibility to address pollinator decline. The EPA is expecting states and tribes to develop these plans without any additional funding.[54]

More than twenty U.S. states have completed or are completing Managed Pollinator Protection Plans aimed at reversing bee losses.[55] However, our examination finds that all of these plans lack the concrete and mandatory measures needed to protect bee and pollinator health. Stakeholder meetings regarding the plans continue around the United States.

In the absence of federal leadership, state actions remain a grab bag of plans and proposals that tend to favor agribusiness and agrichemical players — leaving beekeepers with the responsibility and liability for protecting bees from pesticides.

BURDEN ON BEEKEEPERS

While varying in their approach, all of the state Managed Pollinator Protection Plans to date place the burden of action on beekeepers rather than pesticide applicators. For example, beekeepers are expected to report their hive locations, but pesticide applicators aren't required to report pesticide applications. George Hanson, an Oregon beekeeper, explains his frustration with this requirement: "I was part of the Oregon Plan where some of us wanted to have pesticide use mapped, and others balked at that. So, then, beekeepers stated if pesticides are not mapped, why do beekeepers need to be mapped. Besides, mapping hive locations does not protect native pollinators."

In theory, the state plans are supposed to help growers, pesticide applicators and beekeepers to quickly and effectively communicate to one another about pesticide applications in close proximity to managed colonies. Though farmers and others spraying the dangerous pesticides are encouraged to communicate better with beekeepers in their areas, there are few if any incentives or penalties to encourage this communication. Randy Verhoek, past president of the American Honey Producers Association, explained the difficulty with this approach at a symposium on the state plans: "At the end of the day, it is the farmer who decides if bees live or die. It is their farm."[56]

Another key flaw: All the state plans give pesticide companies a seat at the stakeholder table – spots that should be reserved for beekeepers, farmers, independent scientists, pollinator experts and others who have a direct stake in protecting both bees and other pollinators as well as the crops they pollinate. A pesticide company's primary goal is to profit by selling more pesticides. That goal is at odds with pollinator protection, which, the science shows, requires neonicotinoid restrictions.

STATE POLLINATOR PLANS FOUND LACKING — TOP 10 PROBLEMS HINDERING PROGRESS

1. Provisions to protect pollinators are mostly voluntary — states "encourage" cooperation but do not compel it.
2. The burden of registration and communication is placed mostly on beekeepers, not on pesticide applicators.
3. Pesticide applicators are not required to report where they apply pesticides nor to notify beekeepers of applications.
4. "Stakeholder" designation includes pesticide companies despite the fact that their "stake" is profits. Stakeholders involved in drafting, adopting and evaluating the state plans should be individuals or groups that represent those impacted by bee losses and experts on bee health, such as independent scientists, beekeepers and farmers, not companies whose profits depend on promoting more pesticide use.
5. Little notice is given, if any, to allow the public to provide feedback on the plans.
6. Many plans lack measurable metrics to evaluate success or failure.
7. Many plans fail to address diseases, parasites or other viruses that also harm bees and pollinators.
8. None of the plans require pesticide-free habitats.
9. None of the plans require improvements to pollinator forage, which is key to pollinator health.
10. The plans pay little attention to threats to monarchs, birds and other key pollinators.

BEEKEEPERS KEPT AT BAY

One disturbing pattern in the state plan efforts is the disregard for those who are at the center of the issue – beekeepers. In Massachusetts, beekeepers were cut out of key portions of the planning process. The Massachusetts Department of Agricultural Resources (MDAR) worked closely with the Massachusetts Farm Bureau to write the state Pollinator Protection Plan without any input from the beekeeping community last summer.[57]

In response, more than 3,000 beekeepers across the state created their own Pollinator Protection Plan Framework.[58] The framework presented to the state agency was written by leaders in the beekeeping industry who have hundreds of years of combined beekeeping experience in Massachusetts.

MDAR told beekeepers it would merge the two plans, but when a draft plan was released in March 2016, the state ignored recommendations put forward by beekeeping industry experts. Those recommendations included limitations on toxic pesticides; public education regarding plants treated with pesticides; the creation of pesticide-free pollinator forage; and requirements for pesticide applicators to report when they apply pesticides or notify beekeepers of applications. The state's plan also failed to address native pollinators.[59]

After releasing its plan, MDAR allowed just three weeks for public comment and provided only one week's notice for public listening sessions. Beekeepers requested more notice and time for review, and the state agreed. The beekeepers continue to push the state to incorporate key elements of their plan, which the state has so far ignored.

Records show that key players in the pesticide industry, including Bayer, Syngenta, CropLife America, Responsible Industry for a Sound Environment, TruGreen and Green Industry Alliance, spent more than $190,000 lobbying in Massachusetts on measures aimed at halting pesticide restrictions in the state and diverting attention to other factors contributing to bee decline.

This limited notice and engagement of the public are emblematic of a nationwide pattern. The Massachusetts case also shows how industry interests work in less than transparent ways to protect pesticide use, at the expense of bees. The Massachusetts Farm Bureau and Bayer supported legislation to create an advisory committee on honeybee stewardship, and to investigate non-pesticide causes of Colony Collapse Disorder, but strongly opposed efforts to focus inquiry or regulation on neonicotinoids. In November 2015, Bayer testified before the Massachusetts legislature's Joint Committee on Environment, Natural Resources and Agriculture, "...while we support the establishment of a committee to 'examine the issues relevant to bee colony collapse,' we disagree with the bill's focus, which appears limited to pesticide regulation and specifically to neonicotinoids...the risk of neonicotinoids to honeybee colony health is negligible... by all objective measures, the evidence shows no relevant long-term impact of neonicotinoids on colony health."[60]

Records show that key players in the pesticide industry, including Bayer, Syngenta, CropLife America, Responsible Industry for a Sound Environment, TruGreen and Green Industry Alliance, spent more than $190,000 lobbying in Massachusetts on measures aimed at halting pesticide restrictions in the state and diverting attention to other factors contributing to bee decline.[61, 62, 63, 64, 65 ,66] This is more than double the $70,000 non-profit advocates spent in support of the legislation to restrict pesticides in the state regarding pollinators.[67, 68 ,69, 70] While pesticide lobbyists supporting these measures were employed to track other pieces of legislation, it demonstrates how much the industry invests to halt regulation of its products. Contending with such a strong industry presence in the legislative and investigatory process, the Massachusetts Beekeepers Association noted, "A review group that largely excludes the stakeholders who keep honey bees but instead welcomes the stakeholders who make a living applying pesticides is suspect from the start."[71]

"KNOCKING ON A LOCKED DOOR"

When Lucy Tabit left Washington, D.C. 16 years ago to move closer to family in Massachusetts, the new mother wanted no part of politics. She wanted to live a quiet life and to keep a few honeybees. Now, known as "the bee lady" in Westport, Massachusetts, she is deeply enmeshed in state and national debates over the impacts of pesticides on honeybees.

Tabit operates Hana's Honey, named for her 16-year-old daughter, and has an agreement to place her hives on others' property to help maintain the hives and pollinate plants for the environment. Tabit's bee losses have mounted in recent years, mirroring national trends. "The first few years, I had 10 percent losses getting through winter," she says. "Then it was 100 percent and 90 percent." Though Tabit's bee losses vary year by year, she says they are well over what's considered normal. Overall, Massachusetts had a total winter loss of 46 percent in 2014-2015, according to the U.S. Department of Agriculture and the National Institute of Food and Agriculture.[72]

Based on her experience, and that of other beekeepers, Tabit is convinced that neonicotinoid pesticides are killing bee colonies critical to food production. Determined to help change this, Tabit attended public meetings, lobbied lawmakers, testified before government committees and did all she could to convince regulators to protect bees from the harmful pesticides.

But powerful farm and agrichemical lobbying groups are succeeding in downplaying the problems, she says. "It's very depressing. I feel like I'm knocking on a locked door," says Tabit. "It's a tiny voice against this big machine."

For Tabit, the Massachusetts Pollinator Protection Plan process did little to protect pollinators. Echoing other critics, she says the Massachusetts Farm Bureau, which wrote the plan for the Massachusetts Department of Agriculture, is often on the side of the pesticide industry. When Tabit and other beekeepers sought to attend invite-only meetings hosted by the Farm Bureau, she was told the group was "not ready" for her participation. When the Farm Bureau finally let her attend in July, the group listed Tabit as "supportive" of the plan without her knowledge or permission.[73]

Tabit says better coordination and communication between pesticide applicators and beekeepers could help protect the bees. At the very least, applicators should use best management practices that consider the well-being of nearby bee colonies and should notify beekeepers when they plan to spray.

For the good of our shared future, she says, the use of neonics needs to be reduced if not eliminated. "All of us need to come to the table. This is what we're leaving to our children. We're robbing our children of their future on this planet."

SOURCE: ©creative commons

SOURCE: creative commons

POLICY DRIFT: VOLUNTARY APP PROVIDES POLITICAL COVER

In the absence of muscular U.S. regulations to protect bees from pesticide applications, and with the EPA encouraging states to adopt their own pollinator protection plans, a non-profit, voluntary online mapping program known as "DriftWatch" is emerging. The program, which includes a new "BeeCheck Apiary Registry," aims to facilitate communication between specialty crop producers, beekeepers, growers and applicators. Both efforts are funded by state agriculture departments and voluntary donations from stakeholders, and serve as examples of how the EPA is deferring its responsibility to adopt federal regulation to track and restrict pesticide use.

Purdue University developed the original DriftWatch in Indiana in 2009. But by 2012, the program moved under the management umbrella of a new nonprofit called FieldWatch. Last year, in response to the White House and EPA's desire to do more to protect bees, FieldWatch introduced the BeeCheck Apiary Registry.[74]

FieldWatch has thousands of registered users in 13 states and the Canadian province of Saskatchewan. Of these registered users, 1,749 are beekeepers, 1,655 are specialty crop producers (203 have both crops and bees) and 1,232 are pesticide applicators. Together, these users represent 5,281 apiaries, 4,530 specialty crop fields and a total of 347,127 specialty crop acres, according to FieldWatch.

The list of sponsoring members includes many major agrichemical companies: Bayer Crop Science, Canada; BASF Corp.; Monsanto; Syngenta; and Dow AgroScience, according to FieldWatch.[75]

The "BeeConnected App," developed by CropLife Canada, similarly encourages communication between growers and beekeepers on hive location and pesticide applications.[76] The USDA, EPA and NASDA are promoting the program and encouraging participation by "targeting leaders in the industry to use the apps" in the hope that "others will follow."[77]

However, these apps are used as political cover by the EPA and state agencies involved in the state planning process to demonstrate their "efforts" to protect pollinators. Voluntary approaches like these rely on widespread active participation, which cannot be guaranteed. Furthermore, by utilizing these app-driven programs, regulatory agencies assume all parties involved have access to smart phones, which is not the case. These programs lack the regulatory power to make a significant dent in pollinator decline.

LOOKING THROUGH THE REVOLVING DOOR

The pesticide industry employs a variety of tactics to delay regulatory action on its products, including pumping millions of dollars into lobbying efforts and public relations campaigns that downplay or deny the role of pesticides in bee declines, and even claims that bee decline does not exist.

Friends of the Earth's research suggests that inaction by the EPA, USDA and Congress may be the result of influence by key players who have moved back and forth between the agrichemical industry and the regulatory agencies that are charged with overseeing the industry. Earlier this year, for example, former deputy secretary of the U.S. Department of Agriculture and co-chair of the White House Task Force on Pollinator Health Krysta Harden, announced she was joining DuPont as vice president of public policy and chief sustainability officer.[78]

Even more troubling is the path of Linda Strachan, who moved from her public role as USDA assistant secretary for congressional relations to become Monsanto's director of federal government affairs. She then moved back into public service as an assistant at the EPA before landing at DuPont as its director of government affairs.[79]

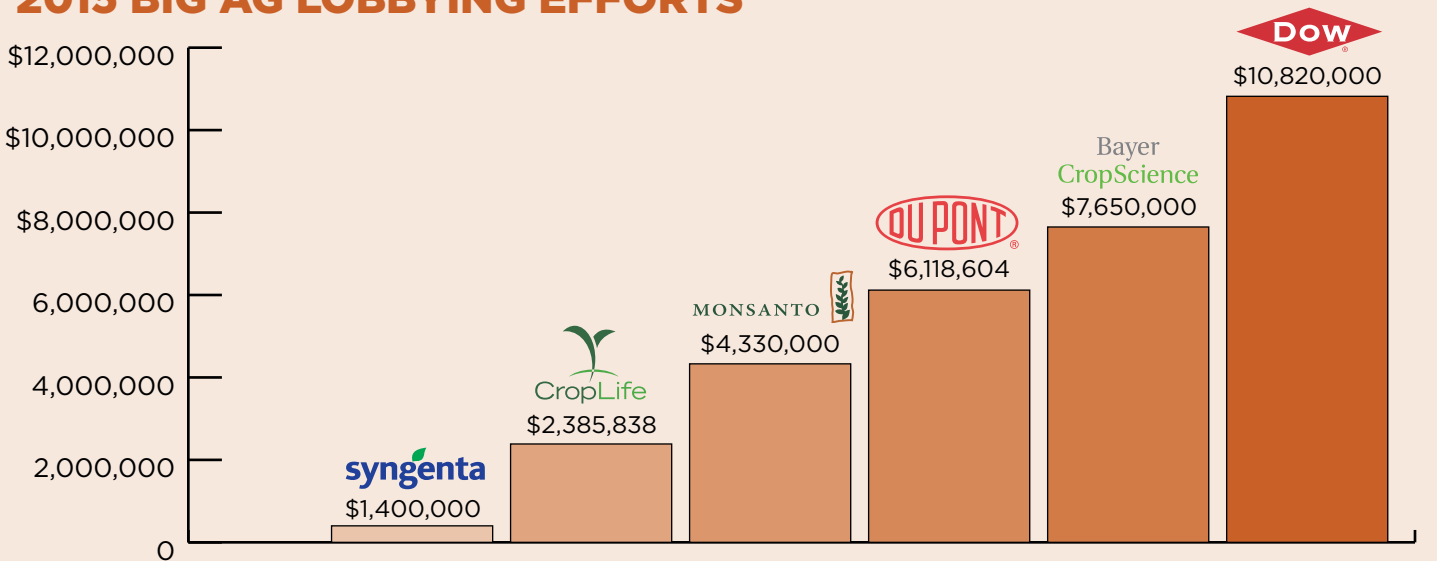
The USDA has more than 180 similar cases,[80] while the EPA has more than 150 cases[81] of employees shuffling between regulatory agencies and companies including Bayer, Syngenta and Monsanto.

Along with our public regulatory agencies being staffed with people connected to the industries they are supposed to oversee, chemical companies pump millions of dollars into direct lobbying each year on agriculture issues. Since Congress began discussing potential responses to bee decline in 2007, Bayer and other agrichemical firms have lobbied extensively to prevent any regulatory focus or ban on neonicotinoids.

While these numbers aren't pollinator or pesticide specific, they provide a revealing illustration of the top pesticide companies' commitment to influencing the legislative processes to regulate the products they manufacture. In 2015 alone, Bayer spent $7,650,000;[82] Syngenta spent $1,400,000;[83] Monsanto spent $4,330,000;[84] DuPont spent $6,118,604;[85] Dow Chemical spent $10,820,000[86] and CropLife America spent $2,385,838[87] on lobbying efforts.

On the federal and state levels, the industry's pattern is to support studies, task forces and advisory committees which do not focus on pesticides, while vigorously opposing any legislation targeting research or regulations on neonicotinoids. In states which explore pollinator protection laws, agrichemical corporations, farm bureaus and other agribusiness groups have lobbied intensively to ensure that reforms do not ban or limit neonicotinoids. In Vermont, Bayer submitted testimony supporting the creation of a Pollinator Protection Committee, stating it welcomed "...a thorough review of the current pollinator population." Yet Bayer disagreed that the bill should have any scope related to pesticides arguing, "...we disagree with the bill's focus, which appears limited to the regulation of pesticides and specifically to neonicotinoid insecticides."[88]

2015 BIG AG LOBBYING EFFORTS



In May 2015, when the White House Pollinator Task Force released its honey bee health strategy, the pesticide industry celebrated the success of its lobbying efforts. As Pest Control Technology magazine reported: "Years of work behind the scenes by industry advocates paid off big time." The publication quoted Jim Fredericks, vice president of technical and regulatory affairs at the National Pest Management Association saying: "Overall, we were pleased with the outcome." The EPA plan's strategy initiatives, he said, "are not so much going to impact the structural pest management industry."

The industry maintains a carefully crafted array of talking points – urging regulatory agencies to focus on the "multi-factored" causes of bee decline, even encouraging action on non-pesticide factors, while insisting that neonicotinoids play little if any role in the bee crisis. While the industry proclaims its commitment to protecting bees, it also downplays the crisis itself. Bayer, for instance, insisted that "honey bee colony numbers are not decreasing" and that populations are even growing by citing numbers from the Food and Agriculture Organization of the United Nations. As Bayer stated, "Within the last five years, the number of beehives grew by around 18 percent to 675,000. Similarly, the bee population in the USA has been hovering around two and a half million since 2001 and is trending upwards."[89] Contrary to Bayer's proclamations, beekeepers have lost an unsustainable number of hives.[90] Due to record losses, many beekeepers have had to rebuild populations via splitting hives, which often results in weaker hives overall and requires investments of time and money for beekeepers. This isn't a long term solution to bee losses. The pesticide industry maintains that bee colony losses are primarily due to factors that include pathogens, parasites, poor nutrition and poor beekeeping practices and downplays the role of pesticides. When Congressmen John Conyers (D-MI) and Earl Blumenauer (D-OR) introduced "Saving America's Pollinators Act" legislation in 2013 (the bill stalled in committee and was reintroduced in 2015), Bayer was joined by CropLife America, the chemical firm FMC Corp, Land O'Lakes and the American Seed Trade Association to oppose the bill – which still has not received any hearings or vote[91] at the time of this report.

Bayer continues to insist that science shows neonics cause little or no harm to bees, even suggesting that pesticides are not part of the problem.[92] "The first step in addressing this problem is the recognition that no single factor is solely responsible," Bayer's director of pollinator safety, David Fischer, told Congress in April 2014. "Most scientists and bee experts believe that numerous stressors can negatively impact honey bee health – including parasitic mites, diseases, adverse weather, habitat loss, crop and hive protection products, nutritional deficiencies and hive management practices."[93] Fischer took his defense of neonics even further, adding, "Contrary to the opinion of some anti-pesticide groups, extensive research has shown these products do not represent a long-term threat to bee colonies."[94]

The industry has worked to push the multi-agency Pollinator Task Force to discount neonics' harm to bees. The Honey Bee Health Coalition, which includes Bayer, Monsanto, CropLife America and DuPont, has encouraged the task force to "...create awareness of the multiple factors that impact honey bee health, the need to improve bee health through a diversity of approaches, the need for public-private collaboration across all stakeholders and the message that beekeepers and farmers are part of 'One Agriculture' system supporting global food security."[95]

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PARTNERS IN SLOWING DOWN REFORM

Clipping the wings of honeybee protections are groups such as the nonprofit Pollinator Partnership (P2) – a "public-private" alliance which has a history of prominent industry ties.[97] The partnership's Corn Dust Research Consortium – with funding from Bayer CropScience, the National Corn Growers Association, Syngenta Crop Protection and the American Seed Trade Association, along with beekeeper and honey groups – includes Dr. Jerry Bromenshenk of the University of Montana, whose research has been funded in part by agrichemical firms.[98,99]

This range of industry and "public-private" lobbying and messaging efforts has one consistent common denominator: By either directly denying or subtly questioning the role of neonicotinoids in bee decline, these various approaches effectively slow and stifle pesticide reforms that science tells us are key to reviving pollinator populations.

More insidiously, a group called Oregonians for Food & Shelter describes itself as "a grassroots coalition of farmers, foresters and other technology users," but also includes Monsanto, DuPont, Syngenta and other agribusiness firms and commodity groups on its board of directors. In testimony before the Oregon legislature, the group said its members "... agreed that the best way to move forward was not with more regulation of pesticides but with collaborative approaches to education, outreach and research."[100] While the coalition supported three such measures, it opposed Oregon bills aimed at restricting neonicotinoid applications.[101]

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SWAYING SCIENCE AND EDUCATION

In addition to funding public-private alliances such as the Pollinator Partnership, Bayer and other firms expend considerable resources on research and education that either questions neonicotinoids' culpability or helps bolster the companies' credibility. This ranges from funding their own studies and research by academic scientists to contributing financial support to educational institutions and sponsoring academic conferences.

In 2014, Bayer announced it had commissioned one of the world's largest bee monitoring studies. But when announcing the study, which claimed to examine whether pesticides and pollinators can coexist, Bayer quoted Dr. Holger Kersten, a "freelance agricultural pesticides consultant," who said: "At the moment, there is a lot of contradictory information about whether neonicotinoids actually are harmful to bee colonies." This study reinforces Bayer's "multi-factor" argument, which downplays or dismisses the role of pesticides in bee declines.

Industry's reach into academia

The long arm of the pesticide companies reaches deep into academia as these companies also work to form strategic relationships with researchers. For example, Dennis Van Engelsdorp, an assistant professor of Entomology at the University of Maryland,[102] is also the project director at the Bee Informed Partnership,[103] an initiative sponsored by Project Apis — which has ties to the pesticide industry as we documented in Friends of the Earth's Follow the Honey report.[104] Van Engelsdorp also sits on Monsanto's Honey Bee Advisory Council.[105] He often backs industry views that seek to place blame for bee losses on factors other than neonics. For example, as co-author of the 2015-2016 report on bee losses, VanEnglesdorp is quoted attributing honeybee losses partly to "...backyard beekeeper hobbyists who don't treat their bees for mites with pesticides, even organic ones. Their hives die and survivors full of mites head to new hives, spreading the problem."[106] At a summit about the Maryland Pollinator Protection Plan, he insisted that neonicotinoids aren't a problem in the state, arguing that his latest research shows the varroa mite pest is "an even bigger problem than we first thought."[107] His stance is well aligned with Monsanto – on the company's blog he states, "There is little doubt that varroa mites are the biggest contributor to increased losses reported around the world."[108]

These firms plant seeds of credibility and influence through their donations to, and sponsorships of, education and academic associations. The 2014 Entomological Society of America annual conference, for instance, boasted sponsorship from Dow AgroSciences, FMC Agricultural Products, Syngenta, BASF and Bayer CropScience.[109]

Government researchers under pressure

Even government scientists appear pressured to support the pesticide industry position. In 2015, Public Employees for Environmental Responsibility reported that USDA scientists working on topics with direct relevance to industry interests were under "constant pressure not to do anything to upset these important "stakeholders," including scientists working on pesticide issues that included neonicotinoids and glyphosate.[110] USDA scientists report that the agency retracted studies, watered down findings, removed scientists' names from the authorship of papers and delayed approvals for publication of research papers.[111]

Jeffrey Pettis, former lead researcher at USDA's bee lab in Beltsville, Maryland experienced this treatment firsthand. At a congressional agriculture committee hearing in April 2014, Pettis was instructed by the committee to restrict his testimony to the Varroa mite. When questioned by subcommittee chairman Austin Scott (R-GA), he explained that even if we eliminated the Varroa mite tomorrow, bees would continue to decline because neonicotinoids raise concerns for bees to a new level. Pettis explained the hearing was, "... heavily weighted toward industry." At the end of the hearing, Representative Scott told him he had not "followed the script." Several months later, he was demoted.[112]

Image: Michael S. Williamson/*The Washington Post*

SEEKING ANSWERS IN BIODIVERSITY

Agricultural scientist Jonathan Lundgren went through years of "soul searching" before resigning from a career as a senior scientist and research entomologist at the U.S. Department of Agriculture to launch what he envisions as a purer form of public science. While working at the USDA, he said his research related to agricultural pesticides (including neonicotinoids and glyphosate) was censored and suppressed.

Lundgren left the USDA in March after suing the agency in a "whistleblower" action. He claimed agency officials suppressed research findings which had negative implications for pesticides that are big revenue generators for the agrichemical industry. In addition, he was one of ten USDA scientists who filed a petition against the agency with help from Public Employees for Environmental Responsibility. The scientists said they were asked to water down findings and retract studies and that they experienced retaliation when their work spoke to the harms of pesticides or other topics unfavorable to corporate agriculture interests. In addition to Lundgren, three other scientists on the petition worked on pollinator-related research.

Operating through farm and research center Blue Dasher Farm, 40-year-old Lundgren now works with farmers around the country and other scientists to establish a national network of centers for excellence focused on the study of regenerative food production practices. Unlike conventional agriculture, which is chemically-intensive and biologically-simplified, Lundgren uses agroecological methods which work with nature as an ally, adapting to and regenerating nature's resources. Methods such as cover cropping, crop rotation and conservation tillage can mitigate honeybee colony losses and enhance soil health, biodiversity and crop production.[113]

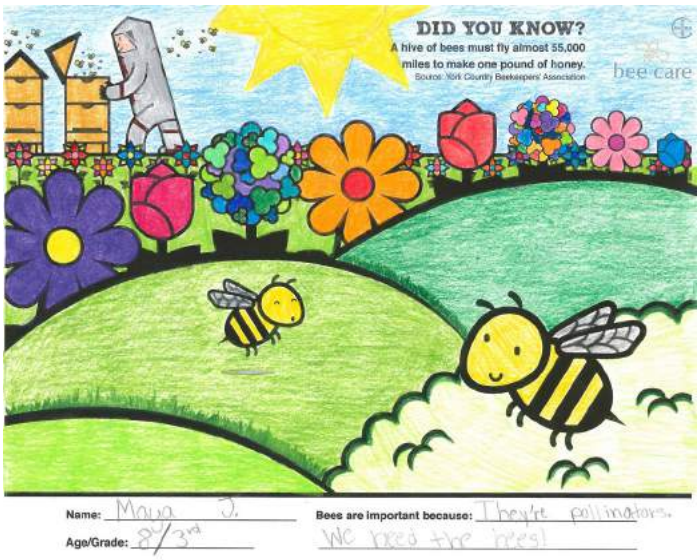
The project is still young. Lundgren and his wife moved to the 53-acre farm in Deuel County, South Dakota in early 2016 and spent the spring setting up bee hives and sowing specialty crops for seed such as annual sweet clover.

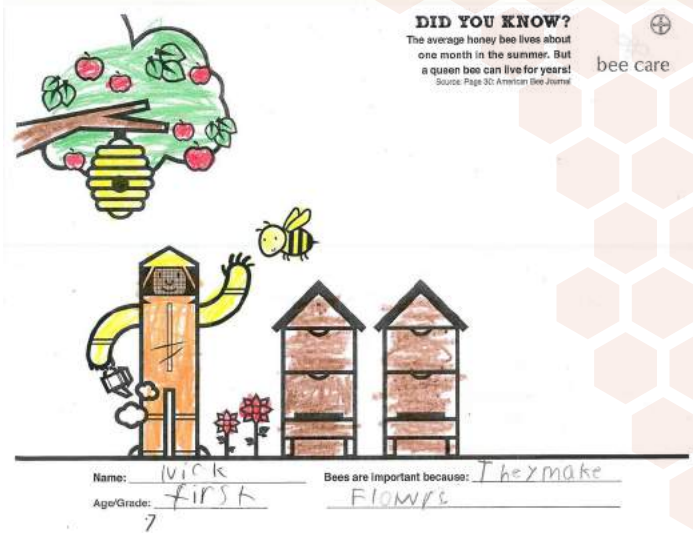
"You start with one county and expand from there," Lundgren says. "It's become clear that solving the honeybee issue is not going to be possible without reformed food production systems. That means we need to be really focused on healthy farming of healthy food with practices that preserve soil health and biodiversity. There are a lot of farmers that are doing this already really profitably. For farmers, it's a good business decision."

Lundgren plans to make Blue Dasher a demonstration farm where he will study and document a range of regenerative practices such as using less fertilizer and other synthetic inputs. Although Lundgren will not certify Blue Dasher as an organic farm, he will incorporate organic methods.

"This is the first node of what we envision being a national network," says Lundgren. "There is a hybrid system here that can accomplish the goals of regenerative farming. We can raise more nutrient dense food while conserving the soil and biodiversity resources."

Images: Bayer Crop Science US





Pictures colored by children for the Bayer "Color Me Bee-autifully" coloring contest.

POLLINATING MISINFORMATION: INDUSTRY IN OUR SCHOOLS

Bayer is particularly active in its messaging to influence students. The company issues regular newsletters promoting its bee support efforts — mentioning everything except pesticide use. In 2014, Bayer launched a "Color Me Bee-autifully" coloring contest for children, in which participants were tasked with coloring pictures of hives with bee facts. None, however, mentioned pesticides.[114] Bayer also visited elementary schools in Arizona to talk about the importance of bees[115] and opened its Bee Care Center in North Carolina to teach students, Girl Scouts and other groups about the importance of pollinators and the company's work to "protect the bees." Girl Scouts that tour the facility and complete Bayer activities receive a Bayer "I Care For Bees" patch.[116] During these visits at the center, Bayer teaches visitors about the Varroa mite and other pests impacting bees but fails to mention the impact of pesticides.

The company also donated $10,000 dollars to both the SEED School of Washington, DC[117] and the Kansas City, Missouri-based Lakeside Nature Center to create pollinator gardens and strategic partners to appear as friends of the bees.[118] Bayer also donated $50,000 to the National Future Farmers of America Organization for students seeking a career path in honey bee health[119] and $10,000 to the Illinois Central College Agricultural Program.[120] "We recognize the value ICC and other community colleges bring to the industry and we want to support them as they are expanding their reach," said Jim Blome, president and CEO, Bayer CropScience LP. Tellingly, the press release announced that the idea for the donation came from "A Bayer CropScience employee and member of the College's Ag Advisory Committee" – another example of the often intimate relationships between agrichemical corporations and educational institutions. The corporation also gave $150,000 to the National Agricultural Center and Hall of Fame in Bonner Springs, Kansas (roughly one-fourth the center's annual budget) to create a permanent children's exhibit on science and agriculture issues, including a focus on honeybee health.[121]

Both Bayer and Syngenta[122] sponsored the American Agri-Woman's (AWW) Drive Across America Tour, a five-month educational and advocacy tour with farm, ranch and agri-business women. The tour stopped at Bayer's Bee Care Center to promote its efforts to protect pollinators.[123] AWW is also a partner of Bayer's Feed a Bee Initiative, one of Bayer's latest projects to develop strategic alliances with farms, NGOs, gardeners and beekeepers to demonstrate its commitment to protecting bees.[124]

LOOKING TO THE FUTURE:

There is broad scientific agreement that today's honey bee and pollinator losses are dangerous and unsustainable, and a clear threat to ecosystems, species preservation and our food system. Despite this grave threat to the environment and our future food production, the agrichemical industry spends millions of dollars creating smokescreens to avoid getting stung by any regulatory restrictions. The industry's sophisticated, multilayered use of the public-private revolving door, lobbying and efforts to direct regulatory attention away from pesticides, including neonicotinoids, has been irresponsible and dangerously successful. The bees, as well as our food future, cannot afford these industry distractions aimed at protecting products implicated by a strong and growing body of science as a major factor in pollinator declines.

Even as bee losses mount, these companies' power is poised to intensify. The top six agrochemical and seed companies are currently negotiating mergers, which could result in just three powerful multinational corporations controlling this industry. If Monsanto and Bayer, Dow and DuPont and Syngenta and ChemChina form their respective proposed partnerships, the three resulting corporations will control more than 65 percent of global pesticide sales and almost 61 percent of commercial seed sales.[125] This would have serious consequences for the market by limiting options to farmers and consumers while also increasing their power in the policy arena. This could give the pesticide industry even greater influence over pollinator protection policies, further tilting the balance away from independent science and the health and safety of the American people and the pollinators we depend on.

However, there is hope for pollinators. Awareness and action are on the rise: A large percentage of the retail sector has removed neonicotinoids from its plants.[126] Maryland and Connecticut have passed bills to eliminate consumer use of these pesticides; and cities, universities and people in their own backyards are creating safe havens for bees by reining in the use of neonicotinoids and other pesticides.

Regulators must act immediately to limit the proven harm associated with these bee-toxic pesticides, while addressing other factors such as habitat. The efforts by the agrichemical industry to push its products at all costs must be met with rigorous regulatory action from state and federal officials, and a commitment to protect the greater good – our environmental future and the pollinators we rely on for the food that nourishes all of us.

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